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Symphaster ximeniae sp. nov.: a rare asterinaceous fungus from Brazil

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Abstract — A new asterinaceous fungus collected on *Ximenia americana* is described from Northeastern Brazil and named *Symphaster ximeniae*.

Key words — *Asterinaceae*, *Olacaceae*, systematics

Introduction

Among the 46 genera of *Asterinaceae* Hansf. recently listed (Kirk et al. 2008), *Symphaster* Theiss. & Syd. (Theissen & Sydow 1915: 217) has the smallest number of species. It comprises only two species: the type species *S. gesneriaceae* (Henn.) Theiss. & Syd. (basionym *Cocconia gesneriaceae* Henn.), and *S. areolata* (Doidge) Arx (basionym *Isipinga areolata* Doidge). The first species was observed in Rio de Janeiro, Brazil, by Hennings (1904: 91) on leaves of an unknown *Gesneriaceae* plant, and since then no other registers of specimens of this fungus have been made, indicating its rare condition. The second species was found on *Euclea natalensis* A. DC. (*Ebenaceae*) in South Africa (Doidge 1921: 15).

Many epiphytic fungi have been described on leaves of *Ximenia americana* L. (*Olacaceae*), mainly *Meliolales* (Viégas 1961, Silva & Minter 1995, Mendes et al. 1998), but no *Symphaster* species has been registered. Similarly, new *Asterina* species have been recorded in recent years (Hosagoudar et al. 2001a; Hofmann & Piepenbring 2008; Song 2003; Song & Li 2002, 2004; Song et al. 2003a,b, 2004), but no new *Symphaster* species.

During the past few decades, Müller & Arx (1962) and Arx & Müller (1975) added new information about *Symphaster* and in this century Hosagoudar et al.

(2001b) and Bezerra (2004) made new contributions. The family *Asterinaceae* has been well characterized by Müller & Arx (1962), Lutrell (1973), Arx & Müller (1975), Barr (1987), Hosagoudar et al. (2001b), and Bezerra (2004).

As occurs with other biotrophic pathogens in *Asterinaceae*, *Symphaster* species are apparently host specific. In this case, not only morphological characters but also the host plant may be useful to separate species. Considering the low number of records of the genus, however, host specificity should be confirmed. For Hofmann & Piepenbring (2008), induction of plant infection and DNA sequence data may help elucidate this question for this family.

During a survey of *Asterinaceae* in a tropical forest in Brazil, a fungus with characteristics of *Symphaster* was found and is now described as a new species.

Materials and methods

Leaves of *Ximenia americana* (local name: Limão; Ameixeira-do-Brasil) showing superficial black stromata of an asterinaceous fungus were collected in October 2006 in the "Reserva Ecológica de Dois Irmãos", a remnant of Atlantic Rain Forest, in the municipality of Recife, State of Pernambuco, Brazil. The aspect of the colonies on the leaf was observed on a stereomicroscope and the adhesive transparent tape method was used to visualize hyphae and hyphopodia. Free hand sections and squash mounts stained with lactophenol cotton blue were used to study the morphology of the fungus under the light microscope. The structures were measured in water. An exsiccatum of the material was deposited in the mycological collection of URM Herbarium and Mycobank number for new species was cited.

Taxonomy

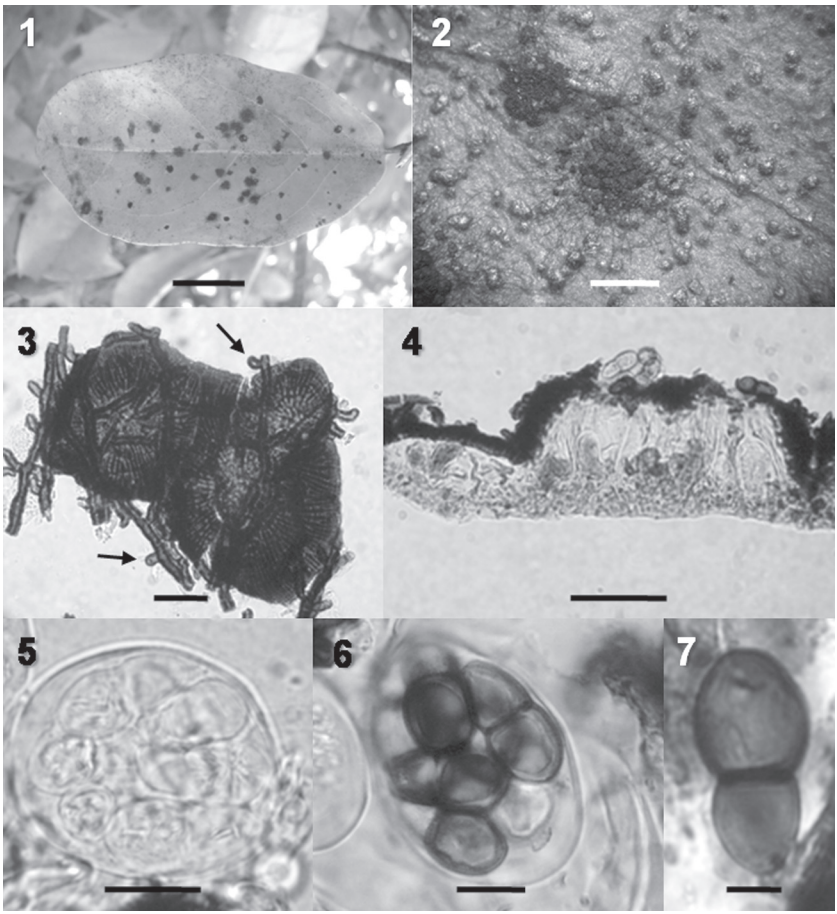
Symphaster ximeniae J.L. Bezerra, Drechsler-Santos & Jad. Pereira, **sp. nov.**

MycoBank MB512160 Figs. 1–7

Coloniae epyphyllae vel amphigenae, densae, dispersae vel confluentes, 1–4 mm diam. Hyphae flexuosae, brunneae, septatae, hyphopodiatae, ramosae, cellulis 16–20 × 5–6 μm. Hyphopodia unicellularia, brunnea obovata vel oblonga, recta vel incurvata, alternata vel opposita, integra, cellulis, 8–13 × 5.5–7 μm. Haustoriae intraepidermale, hyalinae. Thyriothecia ad 60–200 μm diam, confluentes, multilocullata, rotunda vel irregulariter, stellato dehiscentes ad centre, margine crenata; asci 38–52 × 23–32 μm, octosporae, globosae, bitunicatae, sessilia; paraphysoides mucosae praeditae; ascosporae 21–25 × (6–)7–10(–14) μm, ellipsoideae, brunneae, bicellulatae, fortiter constrictae, submediane septae, parietus glabrae vel leniter espinescentis.

Type: BRAZIL: Pernambuco, Recife, Reserva Ecológica de Dois Irmãos (08º00'39.1"S and 34º56'38.8"W, 10m alt.), 12.X.2006, leg. J.L. Bezerra and E.R. Drechsler-Santos, on living leaves of *Ximenia americana* (**Holotype**, URM 79224).

Etymology: derived from the host genus *Ximenia*.



Figs. 1–7. *Symphaster ximeniae*. 1–2. A leaf of *Ximenia americana* showing epiphyllous colonies. 3. Young ascomata with hyphopodiate hyphae (arrows) 4. Vertical section of ascoma. 5. Young bitunicate ascus. 6. Ascus with mature ascospores. 7. Ascospore with septum below the middle.
Scale bars: 1 = 5 mm; 2 = 1 mm; 3, 4 = 50 μm; 5 = 20 μm; 6 = 10 μm; 7 = 5 μm.

Colonies dull black, amphigenous, mostly epiphyllous, crustose, subcircular to irregular, isolate or confluent, scattered, 1–4 mm diam. Mycelium superficial of flexuous, brown, septate, hyphopodiate, oppositely or unilaterally branched, teleomorphic hyphae 16–20 × 5–6 μm. Hyphopodia unicellular, brown concolorous with the hyphae, obovoid to oblong or cylindrical, straight or curved, opposite or alternate, entire, 8–13 × 5.5–7 μm. Haustoria coralloid, hyaline, intra-epidermical. Ascomata dark brown, round to irregular, scutate, confluent, 60–200 μm diam, forming stromatic multilocular crusts; upper wall,

opaque dark brown, 8–17 μm thick, formed of radiating rectangular cells, 6–12 × 3–5 μm diam, opening by stellate dehiscence. Basal wall, 10–17 μm thick, formed by hyaline, thin walled hyphal cells. Paraphysoids numerous, in gelatinous mass, hyaline, filiform, septate, 2–3 μm diam. Asci 8-spored, globose to subglobose, sessile, thick walled, bitunicate, not bluing in Melzer's reagent, 38–52 × 23–32 μm. Ascospores 1-septate below the middle, constricted in the septum, oblong, with rotund ends, brown at maturity, smooth to slightly rough, 21–25 × (6–)7–10(–14) μm, with a larger apical cell.

Notes: *Symphaster ximeniae* differs from *S. gesneriaceae* and *S. areolata* by possessing globose to subglobose asci and smaller ascospores, which are septate below the middle. *Symphaster areolata* and *S. gesneriaceae* differ from each other in ascospore size and type of hyphopodia. Authentic material of *S. areolata* (URM 23061 = PRE 22362) was examined, but no ascoma was seen. Each of the three *Symphaster* species occurs on a different host family.

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